Visit Report
Of
Water Treatment Plant
At
Puikhadi, Kolhapur
On
24th Sep, 2022

ACKNOWLEDGEMENT

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INTRODUCTION

As a part of academic visit by B. Tech Civil Engineering Program level of Department of Technology, Shivaji University Kolhapur has arranged an academic visit to Water Treatment Plant, Puikhadi, Kolhapur at 24th, September 2022.

Under the guidance of Asstitant Professor Mr. Y.S. Vatkar Sir, We 75 students visited to WTP Puikhadi, Kolhapur. Supervisor of WTP has given information and guidance about the existing working of Water supply scheme, Phase-I, Part-I constructed WTP at Puikhadi capacity- 60 MLD and Water supply scheme, Phase-II, Part-I constructed WTP at Puikhadi capacity- 20 MLD from Kalammawadi Dam.

The raw water collected from river near Shignapur are lifted Siphon ally to Aptenagar area then pumped and forwarded to Puikhadi WTP for treatment Process. Every day, this plant treated water having capacity of 60 MLD and treated water supplied to Kolhapur A and B ward for drinking purpose.

We understand the raw water treatment process done by step by steps as follows:

1) Aeration Fountain:

i) R.L. – 636.500 M

ii) Diameter - 9.0 meter,

iii) No. of Cascades – 5 Trade of Cascade: 0.75 m, Rise of Cascade: 0.15 m,

iv) Diameter of Inlet – 1.2 meter,

v) Designed Capacity – 84 MLD.

Photo No.1 Aeration Fountain

Objective:

1) To eliminate unneeded dissolved gases such as (CO_2, H_2S, NH_3).

2) To increase D.O. level in water.

2) Parshall Flume & Elevated Channel:

i) F.S.L.RL – 535.500 M

ii) Width – 1.75 m,

iii) Depth of water – 0.70 m,

iv) Free Board – 0.30 meter,

v) Designed Capacity – 84 MLD.

3) Flash Mixure:

i) F.S.L.RL – 634.450 meter

ii) Size – 5.05 meter X 3.80 meter,

iii) Depth of water – 4.25 m,

iv) Designed Capacity – 84 MLD.

4) Clariflocculator:

i) F.S.L.RL – 633.750 meter

ii) Nos- 2 No's, Capacity- 60 MLD/No.,

iii) Side depth of water – 3.50 m,

iv) Diameter of inlet shaft – 1.0 meter & Diameter of Flocculator – 15.20 meter/No.

v) Diameter of Clarifier – 37.25 meter/No.

Photo No.2 Clariflocculator Tank

Objective:

1) Flocculation is mixing process in which suspended particles are brought into contact in order to promote their agglomeration.

5) Rapid Sand Filter Beds:

i) No. of Beds – 8 Nos.,

ii) Designed Capacity – 60 MLD of 7 Beds & 1 Bed Stand by.

iii) Size of Beds: 7.5 meter X 4.0 meter for 1 Section, 2- Sections for each bed,

iv) Area of each Filter Bed – 60 Square Meter,

v) Manifold – 0.75 M X 0.9 M R.C.C. Laterals – 80 mm ØA.C CL III23 X 2 Nos.

Filter Media:

A) Supporting Gravel Media: 0.45 meter,

B) Quartzite Sand: 0.70 meter.

Filtered water pipe Ø: 250 mm, Back Wash Pipe Ø: 350 mm

Photo No.3 Rapid Sand Filter Beds

6) Wash Water Tank:

i) F.S.L.RL – 642.500 & Bottom R.L.: 640.150

ii) Capacity – 7, 00,000 Litres.

7) Chemical Tanks:

i) Alum Tank – 6 Nos, Capacity- 6000 Ltrs/No.

ii) Soda Tank – 2 Nos, Capacity- 6000 Ltrs/No.

iii) TCL Tank – 6 Nos, Capacity- 6000 Ltrs/No.

8) Master Balancing Reservoir:

i) F.S.L.RL – 630.000 & Outlet R.L. 627.000

ii) Capacity – 70, 00,000 Litres.

9) Re-circulation Tank:

i) F.S.L.RL – 626.700 & Bottom R.L.: 623.700

ii) Capacity – 30, 00,000 Litres.

After treatment of water passes or flows through all distinctive features, it's collected into a specific elevated water tanks and ready to be supply to many houses area as per daily demand. The water distribution is done statistically as per requirements for a combination of domestic, commercial, industrial and fire-fighting purposes.

CONCLUSION

The treatment of water plays an important role in human life, whether for daily routine purpose for demand of water per day per capita for the Kolhapur city. This WTP visit has given the information about the sources of raw water and on large scale for purification process. Also, understand the design and a systematically the working process of WTP at Puikhadi. Kolhapur.

Photo No. 4 WTP Site Visit.